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AUTHOR Bero, Francesca E.
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ABSTRACT

The paper traces the influence of theories of J. Locke, J. Rousseau and the Abbe de Condillac on the development of educational programs for persons with mental retardation under J. Itard and E. Seguin. Itard's emphasis on sensory activities is discussed, as is his collaboration with Seguin. The effects of their work on M. Montessori, specifically on her stress on the senses of touch and vision are considered. Contemporary practices which emphasize sensory training are traced to these earlier theorists. Appended materials include illustrations of Montessori's sandpaper letters, Sequin's texture board and training apparatuses, and gymnastic exercises designed to improve perceptual motor development. (CL)

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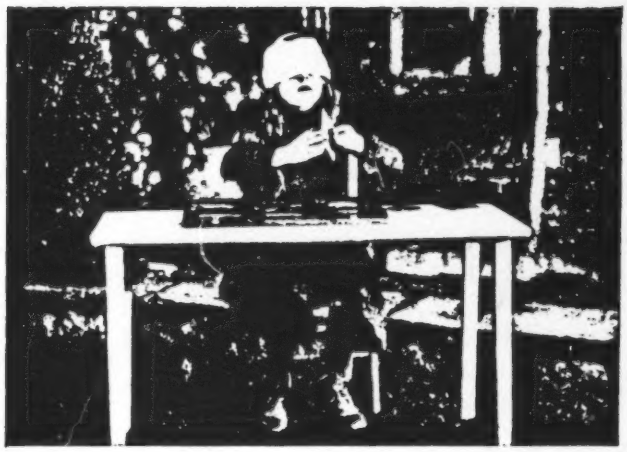
TEACHING THE 'INEDUCABLE': THE IMPACT OF SENSATIONALIST PHILOSOPHY ON EDUCATIONAL THOUGHT AND PRACTICE



In the natural order all knowledge arises from sensations.

--Condillac

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Abstract

Philosophical thought can and does affect educational practice. Nowhere is this more clearly visible than in the evolution of educational practices with mentally defective children. A little over a hundred years ago the mentally defective were not an object of concern to educators. Presently, educational programs are available to all children regardless of mental ability. The origin of the change in attitude and practice toward these individuals may be found in seventeenth century sensationalist philosophy.

This paper traces the influence of the sensationalist thought of Locke, Rousseau, and the Abbe de Condillac on the development of educational programs for the mentally deficient under Itard and Seguin. This change in the treatment of the mentally defective contributed to the development of theories and techniques for both general education and education for handicapped individuals. in nineteenth century America.

Philosophical thought can and does affect educational practice. Nowhere is this more clearly visible than in the evolution of educational practices with mentally defective children. A little over a hundred years ago the mentally defective were not an object of concern to educators. Presently, educational programs are available to all children, regardless of mental ability. The origin of the change in attitude and practice toward these individuals may be found in seventeenth century sensationalist philosophy.

I

Mentally defective children, or "les idiots," [1] as they were commonly called prior to the nineteenth century, were not considered to be educable before about 1850. Philippe Pinel, founder of modern psychiatry, and head of the mental hospitals, Bicêtre and Salpêtrière in Paris, refers to the idiot as "a sad wreck of humanity," and writes in 1806, "it is to be regretted, that this species of mental disorganization is for the most part incurable..." [2] Esquirol, noted physician and colleague of Pinel, writes in his Treatise on Insanity in 1845 that idiots are [3]

> ...what they are doomed to be, during the whole period of existence. Every thing about the idiot betrays an organization imperfect, or arrested in progress of development. We can conceive of no possibility of changing this state. Nothing teaches us how to impart, for a few minutes even, to the wretched idiot, an increase of reason or intelligence.

[1] According to the convention of the times, the mentally retarded or the mentally defective were referred to as idiots. I will be using the terms interchangeably at various stages throughout the paper.

[2] P.H. Pinel, "A Treatise on Insanity," Trans. D.D. Davis. (New York, 1962), 167-168.

[3] E. Esquirol, "Mental Maladies. A Treatise on Insanity." Trans. E.K. Hunt. (Philadelphia, 1845), 446.

By the close of the nineteenth century, barely forty years after the writings of Pinel and Esquirol, educational programs for mentally defective children flourished throughout Europe and the United States.[4] These children were no longer considered to be incurable, but had become an object of concern to educators. This remarkable change in the status of mentally defective children was due to the revolutionary ideas about the nature of the human mind and the role of sense experience suggested by John Locke in England, and developed in France by his disciple, Étienne Bonnot Abbé de Condillac.

In his Essay Concerning Human Understanding, Locke attacked the concept of "innate ideas," and asserted that "all of our ideas are derived from sense experience. I see no reason," he writes, "to believe that the soul thinks before the senses have furnished it with ideas to think on...."[5]

Locke's ideas were widely read in seventeenth century France and interpreted by Condillac. Condillac placed an even greater emphasis on the role of the senses in acquiring knowledge than did Locke.[6] The one essential attribute of mind, according to Condillac, is the capacity for sensation; nothing more is needed to explain even the most complex of ideas. He writes

> Sensations give birth to the whole system of man, a complete system all of whose parts are linked and mutually sustaining. It is a sequence of truths: the first observations prepare the way for those that follow, the last confirm those that preceded them.

In order to demonstrate the key role of the sensations, Condillac used a statue as a metaphor to explain how knowledge is acquired. Condillac's "statue-man" had all of the human faculties except for sense impressions. One by one, the sense organs: smell, sound, taste, sight, and hearing, are brought to life. Each of the senses and their effect on one another is examined in turn. Condillac shows, through his statue-man, that all

[4]Refer to Leo Kanner's "A History of the Care and Study of the Mentally Retarded." (Springfield, Illinois, 1964), Chapter three.

[5]John Locke. "An Essay Concerning Human Understanding." (New York, 1959), Vol. 1, Book 11, Chapter 1, page 139.

[6]Locke relied on knowledge which did not come entirely from sensations while Condillac attempted to demonstrate that all our knowledge and all our faculties are transformed sensations.

knowledge and all the faculties of the human mind are simply transformations of original sense impressions.[7]

The sense of touch is considered by Condillac, to be central to all of the senses. Only with touch (accompanied by movement)[8] can the statue acquire the sense of external objects and the awareness of the self as a distinct entity. Touch, he writes, "instructs the other senses by extending them into the external world."[9]

Locke and Condillac, in their theories about the role of the senses in acquiring knowledge, suggested that it might be possible to remake man (or, in this case the idiot), by remaking the environment. However, there is no evidence in their writings that suggested reform. Nor did they suggest the training or the education of the senses. This is puzzling since the mind depended so heavily upon sense experience. Locke tells us that the senses are trained as a matter of course in growing up; "if the eye is normal it cannot help seeing just as the ear cannot help hearing."[10] Condillac, in his instructions for the Prince of Parma, to whom he was a tutor for several years, writes that "some preparation for the use of the senses is necessary." However, he does not suggest any training beyond that which the child develops naturally.[11]

The first attempt at developing a specific training program for the senses was carried out by Jacob Rodrigues Pereire (1715-1780), an educator of deaf children in Paris. Pereire was concerned with finding a means by which he could help deaf-mutes overcome the loss of hearing. He developed a method using vibration that enabled his deaf children to hear by substituting the sense of touch for that of hearing. Pereire was said to have "practically made his pupils hear through the skin, and to utter exactly what they so heard." In fact, so effective were his teaching methods

[7] Abbé de Condillac. "Treatise on the Sensations." Trans. Geraldine Carr. (Los Angeles, 1930). Part i.

[8] Condillac noted that movement brought about the greatest happiness because of the pleasure it provided to all of the senses. See "Treatise," 91-94.

[9] "Treatise" Part II and III. The role of the sense of touch was to be critical in the designing of training programs for mentally defective children.

[10] Locke, "Essay," Book II, Chapter 6.

[11] Condillac, "The Cours d'Etude pour l'Instruction du Prince de Parme," in Oeuvres philosophiques de Condillac. (LeRoy, Paris),

that is was said his pupils "spoke with correct pronounciation, even imitating his accent gascon, a peculiar southern intonation."[12]

Pereire, like Condillac, emphasized the fundamental position of the sense of touch among the other senses and showed how touch can substitute for senses which are imperfect or lacking. "All the senses," he said, "are modifications of the tact, all touch of some sort."[13]

Jean Jacques Rousseau, a friend and colleague of Pereire, was a frequent visitor to the deaf school. He extended Pereire's training of the sense of touch to the training of all of the senses, and to all children, as well as the deaf mutes. The influence of Pereire's school on Rousseau's writing is clearly visible in the early training of Emile,[14]

> (the child)....wants to touch everything, handle everything. Do not oppose yourself to this restlessness. It is suggestive to him of a very necessary apprenticeship; it is thus that he learns to feel the hotness, the coldness, the hardness, the lightness of bodies, and to judge their size, their shape, and all their qualities, particularly by comparing sight to touch, by estimating with the eye the sensation that they would make on his finger.

In the education of Emile, Rousseau emphasizes the training of touch and of sight, and to a much lesser degree, that of hearing, taste and smell. The sense of sight, he contends "is the least reliable of all of the senses because it works quickly and, therefore must be verified by the sense of touch." The blind, he notes, "have a surer and more delicate sense of touch because they are forced to get from touch what we get from sight." [15]

While emphasizing the role of touch in verifying what is seen, Rousseau also suggests that touch may help the sense of hearing. "If touch were trained sufficently," he writes, "we would be so sensitive as to hear a whole tune by means of our fingers." [16] (Here Rousseau seems

[12] Edward Seguin. "Idiocy: and Its Treatment by the Physiological Method." (New York, 1866), 22-25.

[13] "Idiocy..." p. 13

[14] Jean-Jacques Rousseau. "Emile or On Education." Trans. Allan Bloom. (New York, 1979), 138.

[15] "Emile," p. 140

[16] "Emile," p. 138

to be referring directly to Pereire's work).

In order to sharpen the sense of touch Rousseau suggests hardening the skin to some degree but not to the extent that it "lose that exquisite sensitivity that permits it to recognize the bodies over which one passes it." He suggests "games in the dark" to sharpen both the sense of touch as well as that of hearing. Through these training exercises and by comparing one sense with another, one learns to reason. "In the first operations of the mind," Rousseau writes, "let the senses always be its guides." [17]

In this background of educational and philosophical thought emerged the two great educators of mentally defective children; Jean Gaspard Itard and Edouard Seguin. The theories of Locke, Condillac, and Rousseau had provided the basis for unlocking the mind of the idiot and had also suggested the means for doing so; by beginning with the senses.

II

Itard, like Pereire, worked with deaf children in Paris. In 1801 a young savage, Victor, the so-called "Wild Boy of Aveyron," was brought to him to try to educate. Victor was "mute, dischevelled, and lacked human contact." [18] According to Pinel, he was an incurable idiot, to the point of being "inferior to domestic animals." [19] Itard, however, felt that Victor had no inherent defects, and if educated properly, would develop normally.

The educational program which Itard designed for Victor was based on Condillac's "Treatise on the Sensations," Itard writes that he devoted all of his attention to the "exercise and individual development

[17] "Emile," 206.

[18] Jean-Marc-Gaspard Itard. "The Wild Boy of Aveyron." Trans. George and Muriel Humphrey. (New York, 1962), 4-10.

[19] "The Wild Boy..." p. 5

of Victor's sense organs." It was Itard's contention that the senses of the Wild Boy were simply dull and needed to be brought into activity. In order to "awaken" his senses, Itard applied mental and physical stimulation through such means as; daily baths, vigorous rubbings, mild shocks and emotional upsets. After several months of such treatment Itard writes that "there was a general excitement of all the senses, his sense of touch and smell became more sensitive and that of taste more refined." Unfortunately, Victor's sense of sight and that of hearing did not respond as well and Itard stated that they were "subject to other laws" and needed a particular and longer education.[20]

The sense of hearing, Itard concluded, contributes most to the development of intelligence and he focused the major part of his training on this sense. He writes that he "put all imaginable resources into play in order to awaken the ears of the savage from their long torpor."[21] In order to train the sense of hearing Itard found it necessary to isolate it from that of sight. He covered Victor's eyes with a thick, white bandage and presented him with loud noises of various kinds. Victor was eventually able to distinguish sounds; at first those of instruments such as a bell and drum, progressing to finer discriminations such as vowel sounds. Unhappily, these exercises had to come to an end because of the extreme outbursts of laughter which accompanied these lessons.[22]

Disappointed by the lack of success he experienced in his attempts to improve Victor's sense of hearing, Itard turned his attention to that of sight. The exercises with sight, like those of hearing, involved matching and discrimination. After a period of months Victor was able to read and write to some extent.

Exercises involving the sense of touch followed that of hearing and sight. Itard did not give touch as important a place in the development of the intellect as had Condillac and Rousseau. It is interesting to read the following comment Itard does make regarding ability of the sense of touch to improve Victor's ability to concentrate

[20] "The Wild Boy..." p. 14-20

[21] Ibid., p. 56-58

[22] Ibid., p. 58

> Never have I seen him (Victor) assume the seriousness, calm, and meditative air which spread over his face when he made up his mind about the difference of shape in the object submitted to this tactual examination.[23]

Experiments to increase the sense of touch involved comparisons of objects which differed in shape and size such as; a stone, chestnut, penny and a key, which Victor identified by touch alone. Gradually, as with the experiments with sight and hearing, finer discriminations were presented; an apple, nuts, stones, and pepples. Eventually, through this means Victor was able to distinguish metal letters representing the alphabet.

The sense of smell did not enter into Itard's plan of instruction. Victor, he noted, had the habit of smelling everything that was given to him, even things which we would consider without smell. "Civilization," he said , "could add nothing to his delicacy of the sense of smell." While Itard did not attempt to train the sense of smell he did take pains to develop Victor's sense of taste, or as he put it, to "pervert" it. He often took Victor to dine formally in the City in order to "awaken the taste of the savage to many dishes." [24]

The improvement of the senses of sight, touch, and taste, Itard concluded, contributed powerfully to the development of Victor's intelligence and he wrote[25]

> We are indebted to the works of Locke and Condillac for a just estimation of the powerful influence that the isolated and simultaneous action of our senses exerts upon the formation and development of our ideas.

Unfortunately, the experiment with Victor ended unhappily for Itard because he was never able to teach Victor to speak. However, the success he did have revealed the possibility of educating mentally defective children. In fact, Itard was later asked if he would agree to work with a young idiot to which he replied, "if I were younger, I would, send me someone suitable and I will direct their efforts." [26] The man who was sent to Itard was Edouard Seguin.

[23]Ibid., 62-63.

[24]It is interesting to note the difference in attitude between Rousseau and Itard. Rousseau in "Emile" (pages 116-118), states that taste is far below our other senses. He encourages simple food and tells us, "do not attempt to refine children's taste."

[25]"The Wild Boy..." p. 55

[26]Harlan Lane. "The Wild Boy of Aveyron." (Cambridge, 1979), 261.

III

In 1837 Edouard Seguin, in collaboration with Itard, began the training of the first idiot. This collaborative effort was to influence mentally handicapped children throughout Europe and the United States.[27] Seguin wrote that the idiot is [28]

> ...an individual who moves, feels, understands, and wills, but imperfectly; he does nothing, cares for nothing... is isolated: a soul shut up in imperfect organs, an innocent.

Lacking the ability to walk and to prehend objects the idiot remains isolated. While he may have the potential for these movements, they are not under the control of his will and remain disordered, mechanical, spasmodic, or automatic.

The difficulties with movement are closely related to those of touch. The sense of touch, in some idiots are dull; "they strike their fingers against the hardest bodies with apparent pleasure and irrestible eagerness," while other children are unable to touch anything, "but with the delicacy of the humming-bird." Seguin summarizes the defective sense of touch displayed by idiots in this striking passage[29]

> ...some hands are carassed, sucked, bitten till the blood starts, others are constantly bathed in saliva, and their skin nearly resembles that of the washer-woman: these hands feel, out of the mouth, like fish out of water.

The senses of taste and smell, Seguin writes, are indifferent in the idiot rather than abnormal. Taste, he writes, is "oftener depraved, and the smell is more frequently exhalted." Hearing is passive and limited although the idiot does possess the potential ability to hear.

27 See A.F. Tredgold. "Mental Deficiency (Amentia)" (London, 1922), On page 29 he writes: "Until sixty years ago the training of the mentally defective, where such was attempted, was conducted upon no logical method, and it was to Dr. Seguin that we owe the first clear principles upon which it should be based."

28 Edouard Seguin. "Idiocy: and Its Treatment..." p. 39-40

29 Ibid., p. 59-60.

The child may hear, writes Seguin,[30]

> ...and even audit the sound of objects that he knows and wishes for, and none other. For instance, he hears music, and no articulated voices; or he may retain and repeat tunes, and not be able to hear or repeat a single word. He may, even, in extreme cases, be absolutely indifferent, and consequently appear really insensible to sounds.

The sense of sight, like that of hearing, is basically in tact, but the child lacks the capacity to control vision. "He sees by chance," notes Seguin, "but never looks." Seguin describes the sense of sight as follows:[31]

> Be it fixed in canthus, be it wandering and unfixable, be it glossy, laughing like a picture moving behind a motionless varnish, be it dull and immured to images, its meanings are not doubtful; it means idiocy.

The senses in the idiot, like those of the Wild Boy are described by Seguin as simply dull and unused rather than being defective.[32] The idiot lacks the "will" to control his sense organs and thus, unlike the normal child, remains in the isolation and helplessness of babyhood. Unlike earlier definitions of idiocy (Pinel and Esquirol) Seguin tells us that the idiot is "one of us in mankind, and is simply shut up in an imperfect envelope."[33]

The training program designed by Seguin to "awaken" the senses of the idiot was called the "Physiological Method," and was largely based on that of Itard's work with Victor. Since the children with whom Seguin worked had difficulty with movement (unlike Victor), his program included the training of the muscles. His movement exercises involved elaborate gymnastic equipment.[34] Sense training followed that of movement and began with the sense of touch. Like his predecessors, Condillac and Rousseau, Seguin felt the sense of touch to be central to all of the

[30] Ibid., p. 61

[31] Ibid., p. 62

[32] Esquirol also wrote of the senses in the idiot being "arrested" but but did not think it possible to change this state.

[33] Seguin, "Idiocy..." p. 65.

[34] Seguin incorporated the exercises of Colonel Amoros, a popular nineteenth-century gymnast, into his training program. See Appendix for an example of these activities.

other senses. He notes that touch is the sense most often neglected in educational programs. (Here, Seguin clearly deviates from his master, Itard). If the sense of touch is "delicate" Seguin suggests using the hands to perform such activities as: carrying bricks, spading, or sawing wood. Alternately, if the nerves are dull, he suggests contact with objects which have varying surfaces such as: marble, velvet, and satin. The hands of the idiot are placed into hot and cold water, into bags filled with various textures such as; bags filled with eider-down, shells, and peas.

The training of the senses of smell and taste follow that of touch because, according to Seguin, they are the senses most closely related to it. Exercises for increasing the sense of smell involve the identification of objects by smell alone. The child is to select and then smell (or even eat) the object he prefers. Seguin tells us, "do not disturb the child if he eats a particular object, (i.e., a flower), let the natural reward of the object bring him pleasure."[35] The importance of cultivating the senses of taste and smell are to cause the child to value cleanliness, good food, and sweet air. Hopefully, Seguin writes, this will open the way for jobs which are suitable to the idiot, such as; gardening, a florist, or a farm boy.

Seguin differed considerably from Itard in the training of the ear, perhaps because of the lack of success Itard experienced with Victor. Instead of presenting "noises" to the ears, Seguin used music to awaken the senses. Music, he writes,[36]

> ...has more lasting and varied application than noises... music pleases the child without hurting him...it gives him rest from hard labor, it causes in the immovable child a tremulousness of all the fibers,;....it awakens, quickens, and supports the thoughts wonderfully, it derives anger, weariness, melancholy, and disposes to gentile feelings; it is a moral sedative by excellance.

35 Seguin, "Idiocy" p. 144-145.

36 Ibid., p. 149

In one interesting passage Seguin suggests using touch or vibration to help the idiot to hear. He tells us to place the child near the piano and to support his hands and chest against the instrument in order for the child to "feel" the music. There is a striking similarity in this passage with the one in Emile in which Rousseau suggests using musical instruments to increase the ability to hear.[37]

Specific training exercises for the ear involved playing music in groups as well as in isolation. In the same way that Itard worked with Victor, Seguin often played music while the child was blindfolded, or in the dark to increase the powers of concentration. Music, used to train the voice, was followed by imitation exercises to help the child to learn correct pronounciation. Seguin borrowed heavily from Pereire's work with deaf children for this training. Imitation, Seguin writes, begins with touch[38]

> ...all the parts of the face are moved in correlation with the fingers with the double object, first giving the child an analytical survey by the touch, the sight, and the movement of the various parts involved in the act of speech... second, of making him execute silently after us the movements of the different parts employed in speaking.

The last, and most difficult of the senses to train, according to Seguin, was that of sight. Seguin, like Rousseau, thought the sense of sight to be most closely related to intellegence. He found it particularly difficult to train because it is more "active" than the other senses and he writes [39]

> To make a child feel a body, we put it in his hand; to make him smell another, we bring it to his nostrils; to make him taste another; we place it in his mouth; but to make the idiot see, when he turns his eyes away, or covers them with his hands, or shuts them, or throws himself down when any object is presented in his sight, what shall we do?

Seguin answers in a most ingenious way, he tells us, "by our own look....the look calls for the look." Seated in front of the child, the

[37] Compare Rousseau's passage in "Emile," page 138, with that of Seguin on page 157 in "Idiocy.."

[38] Seguin, "Idiocy," p. 155.

[39] Ibid., p. 162

teacher searches the eyes of the idiot with an "intense and perservering look." Seguin tells us that it may take days, weeks, or months before the child is able to look at us! Another means for training the sense of sight was the use of a room which Seguin used like a theater by presenting geometrical configurations in combinations of colors in the dark. As soon as the child was able to "fix" his sense of sight, Seguin instantly applied it to some educational purpose such as the teaching or colors or shapes. Following the training of the senses Seguin turned to academic subjects, the training of the memory, imagination, as well as moral training.

Seguin applied and modified the methods he learned from Itard during a ten year period in Paris and in 1850 imigrated to the United States where he founded a number of institutions for mentally defective children. In his later writing Seguin argued for the use of his educational methods with normal children. His work was to revolutionize programs for normal children, as well as children with mental and learning difficulties, through the writings of Maria Montessori.

IV

Montessori, a young Italian physician, utilized the techniques of Itard and Seguin with an elementary class of normal children in the early 1900's. She laborously copied their writing by hand, making books for herself "as the old Benedictines used to do before the diffusion of printing." "For ten years," she writes,[40]

> I not only made practical experiments according to their methods, but through reverent meditation; absorbed the works of these noble and consecrated men, who have left to humanity most vital proof of their obsecure heroism.

[40] Maria Montessori. "The montessori Method." Trans. Anne E. George. (New York, 1912), 46.

Following the tradition which began with Locke, Montessori supported the concept that the development of the senses precedes that of intellectual development. The education of the senses, she felt, should begin in infancy for all children between the ages of three and seven years. Montessori's contribution to the work of Seguin and Itard involved the use of didactic materials presented to the children to improve the use of the senses. These materials consisted of such items as: geometric solids in graduated sizes, colors, and shapes, colored tablets, and cylinderical boxes. An example of one of her exercises would involve placing a set of cylinders of various sizes into a solid piece of wood. These and similar materials she said, serve to "educate the eye," and to distinguish differences in in dimension. The control of error, she notes, lies in the material itself; giving the child concrete evidence of his activity. Montessori's methods aimed, not at teaching the child to order objects correctly, but to train the child to "observe himself." [41]

Educating the sense of touch, like that of the eye, is important in Montessori's Method. Her materials are designed to help the child to perceive different sensations and involve cards of varying textures like those used by Seguin.[42] The exercises for touch, she writes, are particularly attractive to the child and "induce him to seek similar experiences in his surroundings." [43]

Montessori's materials to educate the sense of hearing consist of a series of cardboard cylinders which are closed. Each of the cylinders produces sounds of various intensity depending on the objects inside, i.e., pebbles, corn, and sand.[44]

The educational methods designed by Montessori concentrated primarily on the development of the senses of sight and touch, and to some extent, that of hearing. (Much like the methods of Rousseau). She did very little

[41] Maria Montessori. Dr. Montessori's own Handbook" (Cambridge, 1964), 29-53. We are reminded here of Rousseau's education of Emile in which he tells us that by verifying what he sees through the invention of instruments he will learn to make correct judgements. Emile, p. 206-207.

[42] Refer to the Appendix for comparison of Montessori and Seguin materials to train the sense of touch.

[43] Dr. Montessori's Own Handbook." p. 45

[44] See Appendix for an example of these sound instruments.

with the senses of taste or smell and notes, "this phase of sense education is most difficult and I have not yet had any satisfactory results to record."[45] In order to increase the attention of the child, Montessori used blindfolds on the children in much the same way as Itard, Rousseau, and Seguin did before her. "When blindfolded all the sensations of touch and hearing appear more acute and are more easily recognized."[46]

Montessori's principles were to create a major change in the education of young children. Her writings were translated into many languages and schools opened throughout the world based on her methods.

V

The influence of these early educators, Itard, Seguin, and Montessori, is clearly evident in contemporary educational practices for both mentally handicapped and normal children. In the field of Special Education, programs have emphasized auditory and/or visual training[47] often taught in combination with motor or movement education as did Seguin.[48] Educators in this field have tended to emphasize the training of either vision (as did Rousseau, Seguin, and Montessori), or hearing (as did Itard). There is continued debate as to the relevant importance of the senses on the development of the intellect.[49]

[45] "Dr. Montessori's Own Handbook," p. 190.

[46] Ibid., p. 61

[47] Educational programs which emphasize auditory training are those of: J.M. Wepman, H. Myklebust, and S.A. Kirk. Instructional programs which emphasize visual training are those of Marianne Frostig, and G.N. Getman.

[48] Examples of contemporary programs would be those of L. Bender and N.C. Kephart.

[49] A good review of the current attitude among Special Educators relative to the importance of perceptual and motor skills and intellectual development may be found in "Teaching Children with Learning and Behavior Problems," by D. Hammill and N. Bartel, (Boston, 1975), pp. 402-408.

The sense of touch has played a key role in sense training (except for Itard), particularly to verify that which is perceived by the other senses. An example of a contemporary method using the sense of touch would be the VAKT approach (Visual, Auditory, Kinesthetic, Tactile), designed by Grace Fernald in which the child uses tracing to aid in the remediation of reading problems.[50]

Early childhood education has been heavily influenced by the work of Montessori and of Piaget who supports the notion that sensory motor learning is critical to that of symbolic or representational thought.[51] Contemporary instructional programs for young children stress the importance of sense training.[52]

The role of the senses and the possibility of developing the intellect through their education has remained a strong force in our current educational practices for both handicapped and nonhandicapped children. While there were other forces at work (social and political) during the time in which Seguin and Itard lived, the influence of Locke, Rousseau and Condillac provided the major impetus for the change in the treatment of the mentally defective. This is clearly evident in recent definitions of the mentally retarded which imply that they can in fact "learn" by changing the environment.[53] The idiot has been redefined from that of a hopeless and isolated individual as described by Pinel and Esquirol, to one who has the capacity for developing at least the beginnings of intellectual thought.

[50] G.M. Fernald. "Remedial Techniques in Basic School Subjects." (New York, 1943).

[51] Jean Piaget. "The Origins of Intelligence in Children." (New York, 1952).

[52] See Chapter 12 in "The Formative Years" by stanly Coppersmith and Ronald Feldman (San Francisco, 1974), and pages 21-63 in "Facilitating Children's Development" by John Meier and Paula Malone, (Baltimore, 1979).

[53] S. W. Bijou. "A Functional Analysis of Retarded Development." In N.R. Ellis (Ed.), International Review of Research in Mental Retardation (Volume 1, New York, 1966).

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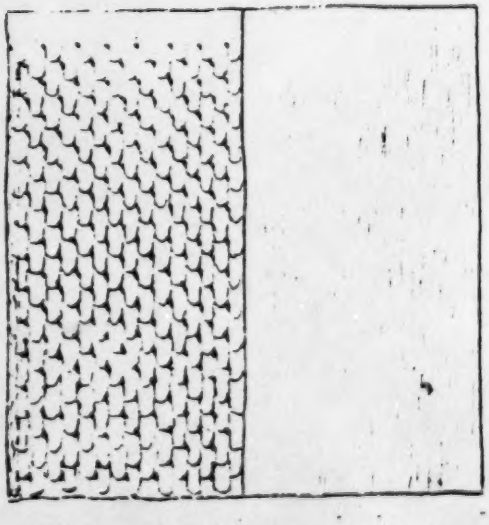
APPENDIX

e l o b f

c v r

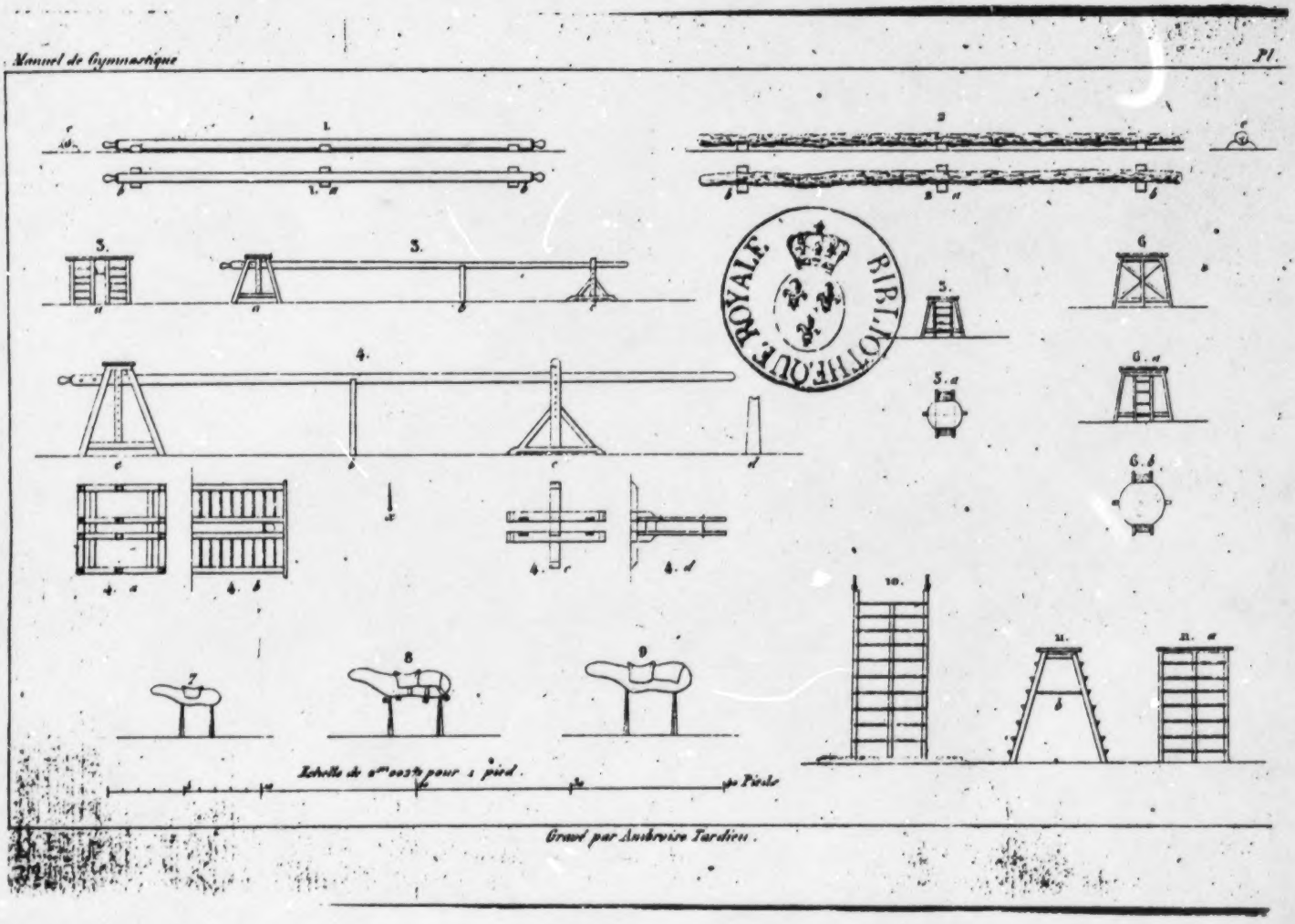
s z

Montessori's sandpaper letters



Seguin's texture board: metal rasp and velvet

Gymnastic Equipment designed by
Colonel Amoros



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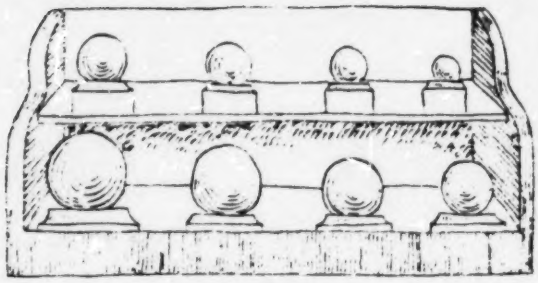
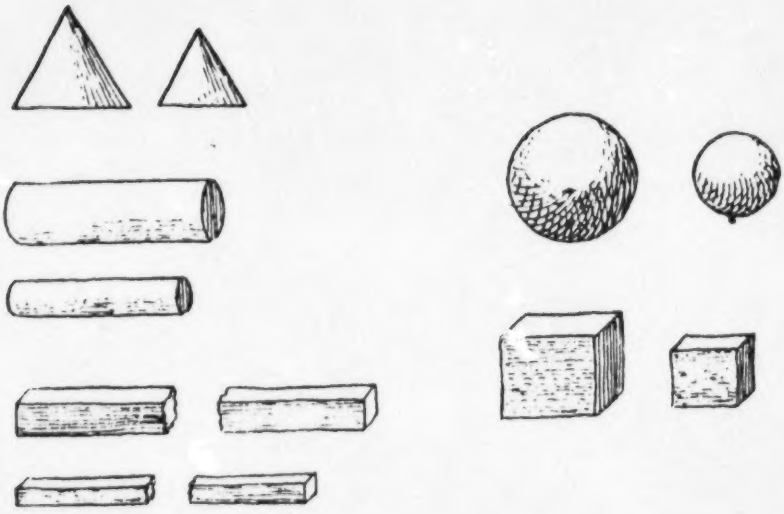
Seguin's Apparatus

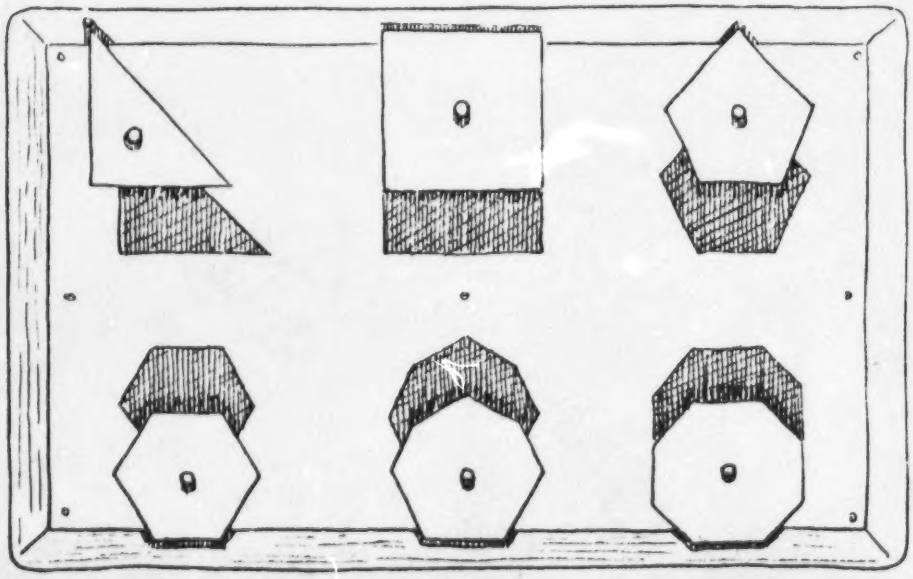
(Reproduced from Mabel Talbot's book Edouard Seguin: A Study of an Educational Approach)



Graduated spheres arranged on pedestals which are graduated in reverse order.



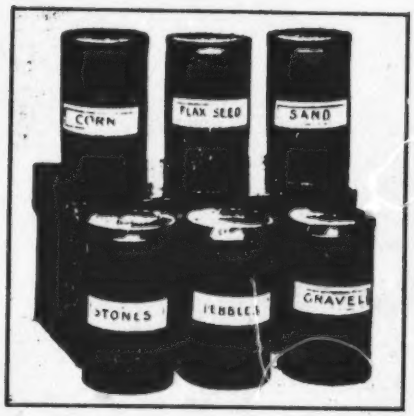
Solids for matching shapes and sizes



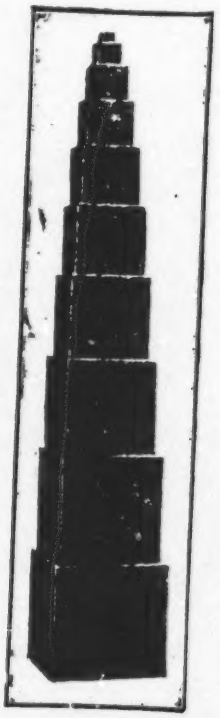
Six-figure board with geometric figures having three to eight sides.

Montessori's Didactic Materials

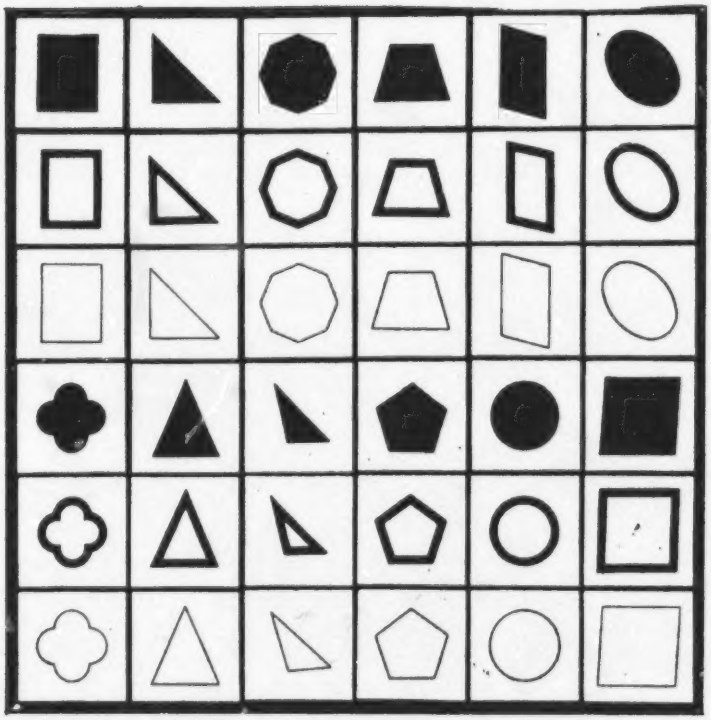
(Reproduced from Dr. Montessori's Own Handbook).



Sound Boxes



The Tower



Series of cards with geometrical forms

Figure 1. Swingboard swing to give child experience of pressure on soles of the feet. (*Redrawn from Bourneville, Fig. 1, p. 217.*)

Figure 4. Scaling ladders used for support and also for development of hand-grasp with correct apposition of thumb to fingers. (*Redrawn from Bourneville, Figs. 4 and 5, p. 219.*)

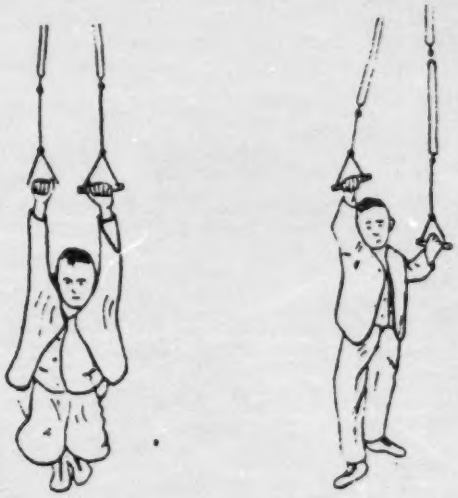


Figure 5. Rings used as aids in teaching arm and body movements. (*Redrawn from Bourneville, Figs. 14 and 15, p. 224.*)

Seguin's apparatus for training movement

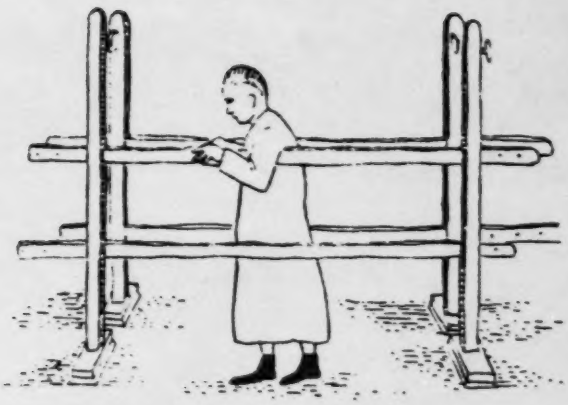


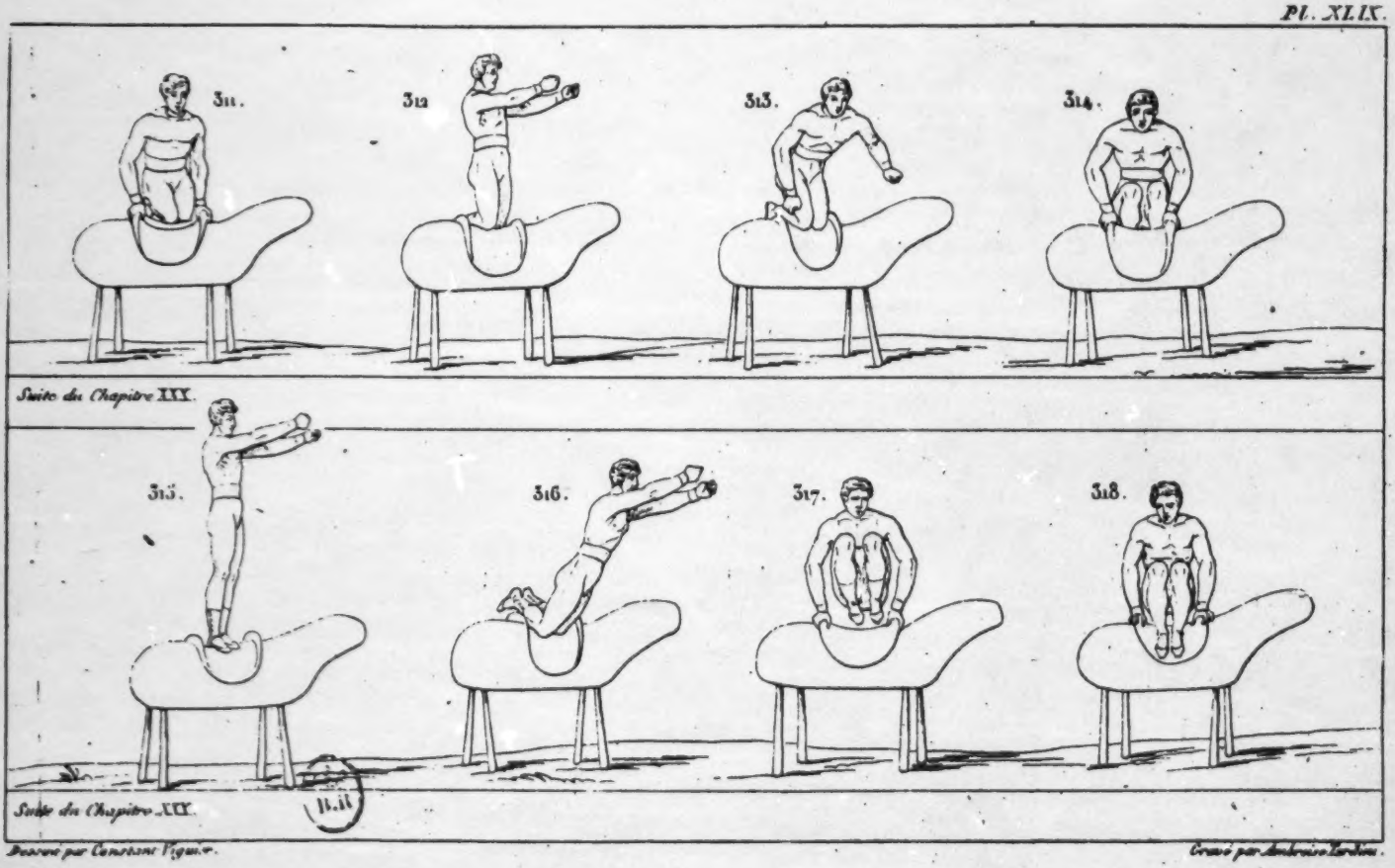
Figure 2. Parallel bars, adjustable to height and shoulder-width of child. (*Redrawn from Bourneville, Fig. 2, p. 218.*)

Figure 3. Climbing stool to teach stair climbing and descent, and to give experience in jumping. (*Redrawn from Bourneville, Fig. 3, p. 218.*)

Gymnastic Exercises

designed by

Colonel Amoros, Marquis de Sotelo



Reprinted from "D'education physique, gymnastique et morale," Nouvelle edition (Paris, a la Librairie Encyclopedique de Roret, 1848), Vol. I.